

# A Lifetime of SHiNE

**W**hat do fighter jets, silicon chips, and plumbing fixtures have in common? All incorporate precision surface engineering technology to stay resistant under high-pressure situations. Assistance from the NASA Glenn Research Center, located in Cleveland, Ohio, led to the development of a new product for one of the world's largest commercial plumbing manufacturers. Ohio-based Moen Incorporated identified a market need for more durable polished brass plumbing fixtures. NASA's Glenn Research Center is a leader in surface coating technology, which enhances the physical properties of a wide range of materials. The collaborative efforts of Glenn and Moen resulted in a new polished brass finish called LifeShine.®

Previously, polished brass was not popular in plumbing fixtures because of the finish's short life span. Ordinarily, polished brass is soft, corrodes easily, and is somewhat expensive. Although brass fixtures are very attractive when new, they quickly lose luster and show signs of tarnish, flaking, and discoloration.

NASA Glenn's Electro-Physics Branch worked with Moen to identify, deposit, and evaluate various abrasion and corrosion-resistant coatings. This process allowed researchers to evaluate and visualize the transition from the laboratory to commercial production; and provided a significant advantage to Moen, avoiding dead ends and costly mistakes that could have hindered the project's success.

Based on testing results generated at NASA Glenn, Moen was able to manufacture an affordable, polished brass finish that is as durable as chrome, and resists deterioration.

LifeShine is guaranteed to resist normal wear and tear and is even scratch-resistant to cleaning products as abrasive as steel wool.



Monticello® Inspirations® Cathedral® Spout Copper Kitchen Faucet and Copper Liquid Dispenser in LifeShine® Copper.



Moen's PureTouch® Aquasuite™ Filtered Water Dispenser, and Monticello® Cathedral® Spout Faucet in LifeShine® Polished Brass.

With further development, Moen was able to incorporate other colors into the LifeShine finish technology including classic gold, nickel, Satine™, Black Opal™, stainless, and copper. In an effort to improve the quality of its new technology, the company added titanium to LifeShine, making the finish even stronger and increasing its already superior durability. Highly resistant to salt and humidity, the LifeShine finish will remain intact even when the fixture is dented.

The partnership between NASA and Moen resulted in the elimination of costly development efforts for Moen. The use of NASA facilities and the participation of NASA researchers, allowed Moen to avoid significant research costs and delays in the development of its new product line. According to Tim O'Brien, Vice President of Technology for Moen, "NASA assistance helped our company increase market share at a time when foreign competitors were knocking at the door." LifeShine was awarded the 2000 ASM International, Engineering Materials Achievement Award, recognizing Moen's outstanding developments in the application of materials in products. ♦

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